PROFESSIONAL ENGINEER

Official Publication of American Association of Engineers

Illinois U Library

ATTEND THE

CENTENNIAL OF ENGINEERING

1852 1952

planned to depict the prominent part the Engineering Profession has played in making America the great country it is today.

Members expecting to attend the A.A.E. meeting please make hotel reservations through national headquarters as far in advance as possible.

HOW TO PREVENT CORROSION

explained practically and fundamentally

THIS book gives a comprehensive discussion of the theory of corrosion, along with practical descriptions of all known methods of combating corrosion. The book deals mainly with the ferrous metals, and in this edition, includes new sections on Biological Influence and Cathodic Protection. Rewriting is extensive throughout, to make the treatment representative of many advances in practical corrosion preventives.

Third Edition

CORROSION

CAUSES AND PREVENTION

By FRANK N. SPELLER, D.Sc.
Corrosion Consultant

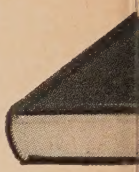
664 pages, 177 illus., 70 tables, $10.00

FREE of mathematical and thermodynamical terms, this Third Edition brings you a simple explanation of the mechanism of corrosion and of the practical methods of prevention as applied to various types of engineering application. The engineer and architect will find it a valuable help in solving specific corrosion problems.

Covers scores of topics like these:

- **what corrosion prevention means in elimination of waste**
- **corrosion; the kinds there are and the factors of their nature and occurrence**
- **how to prevent corrision in various fields of engineering work**
- **the economic aspects of corrosion prevention**

How to drive strong piles that stay put...



HERE is an outstanding book that provides the essential facts and data needed for economical and efficient design and handling of pile foundations. In almost encyclopedic treatment it makes readily available to engineers, architects, and contractors much practical information on all phases of the theory, design, installation, maintenance, and repair of pile foundations — giving numerous aids to overcome the many problems pile design and driving. Piles, pile-driving h mers, and the various rigs are described. book shows you the reasons for pile deterior and provides methods for prevention and re

PILE FOUNDATIONS

THEORY DESIGN PRACTI

BY ROBERT D. CHELLIS
STRUCTURAL ENGINEER
Stone and Webster Engineering Corporation

681 pages, 254 illus., over 70 tables, $12.50

IN clear, simple language this virtual hand covers the principles of soil mechanics— driving—methods for determining pile capac from driving resistances—choosing piles and t of equipment. It treats methods for struct pile design, shows you how to prevent corro of steel piles, and methods for load testing.

Every important type of pile is discus here at length. An entire chapter descr wood piles—with facts on tolerance, com woods used, treatability, effects of seasoning strength, effect of bark, preparation for driv types of splices, methods for providing for u anchorage, etc. You get full coverage of c sons, and caisson-type piles. The book expl H, rail, box, and screw piles—and all kinds wood, steel, and concrete sheet piling. Best te methods for the use of each type are explai

ORDER FROM A.A.E. BOOK DEPARTMENT

8 South Michigan Avenue **Chicago 3, Illin**

ROFESSIONAL ENGINEER

"The Voice of the Engineer"

★

Published Four Times a Year—May, August, October, December

The American Association of Engineers

8 South Michigan Avenue, Chicago 3, Ill.

me 37 | May 31, 1952 | Number 1

Board of Directors
1951-1952

President
PATRICK J. LUCEY
6355 So. California
Chicago 29, Ill.

Vice President
GEORGE HAVAS
Pres., Kaiser Engineers
1924 Broadway
Oakland 12, Calif.

MUND J. FITZMAURICE
5821 Pine Street
Philadelphia, Penna.

VERETT C. SHUMAN
2801 Gunkel Blvd.
Toledo 6, Ohio

WARD R. PATTERSON
2360 — 8th Ave.,
Oakland 6, Calif.

L. S. NEEB
202 E. 6th Street
Tempe, Ariz.

.. WALTER R. JEFFREY
9568 S. Prospect
Chicago 43, Illinois

Secretary-Treasurer
M. E. McIVER
Chicago, Ill.

Table of Contents

	Page
The New AAE Membership Key	5
The Engineer in Industry *M. E. McIver*	7
The Parral Chapter	10
The Centennial of Engineering	11
Program AAE Convention	13
Chapter Notes	14
Book Reviews	20

Make your hotel reservations through National Headquarters for the A.A.E. convention to be held Sept. 2 and 3 during the Centennial of Engineering. See page 13.

M. E. McIVER, Editor

n Association of Engineers assumes no responsibility for statements made or opinions expressed by contributors of articles published in Professional Engineer.

as second-class matter May 5, 1933, at the Post Office at Chicago, Illinois, under the Act arch 3, 1879. Acceptance for mailing at the special rate of postage provided for in section Act of October, 1917, authorized August 9, 1918. Subscription price, U. S., $1.00 a year la, $1.50; foreign, $2.00. Printed in U.S.A.

Copyrighted 1950 by American Association of Engineers.

Mechanics of Vibration

by HOLGER M. HANSEN and PAUL F. CHENEA, *both at the University of Illinc*

1952 417 pages $8.00

Presents fundamentals so they can be easily applied to various types of engineeri problems. Divided into three parts, the first deals with steady state vibrations systems of one degree of freedom; Part II extends the theory to several degrees freedom—the theory is discussed from a classical standpoint with emphasis on t "mobility" concept; Part III introduces special topics.

Antennas: Theory and Practice

by SERGEI A. SCHELKUNOFF and HAROLD T. FRIIS, *both at Bell Telephone Laboratori*

1952 639 pages $10.00

Provides a thorough understanding of antenna behavior and design, beginning wi a broad survey of the entire field and then attacking the various problems of antenn phenomena, giving quantitative answers that are later confirmed by rigorous analysi

One of the WILEY PUBLICATIONS IN APPLIED MATHEMATICS, I. S. Sokolniko Editor.

Advanced Antenna Theory

by SERGEI A. SCHELKUNOFF, *Bell Telephone Laboratories*

1952 216 pages $6.50

Gives a *strict* analysis of the theory behind antenna behavior and design. Devo to recent, important work in advanced theory, this book serves as an excellent revi of trends in antenna research and development. One of the WILEY PUBLICATIO IN APPLIED MATHEMATICS.

Statistical Theory with Engineering Application

by A. HALD, *University of Copenhagen*

1952 783 pages $9.00

A simple, coherent mathematical exposition of a large part of the theory develop during the past 50 years that has proved to be of practical value. Bears the influen of R. A. Fisher's work in the choice of the statistical methods. One of the WILE PUBLICATIONS IN STATISTICS, Walter A. Shewhart, Editor.

Corrosion Testing Procedure

by E. A. CHAMPION

1952 270 pages $6.25

A practical, profitable guide to (1) the prevention of corrosion in metals in service a (2) the production of corrosion resistant metals. Explains basic problems involved corrosion behavior and provides an invaluable list of references.

Handbook of Engineering Fundamentals

Second edition by OVID W. ESHBACH, *Northwestern Technological Institute*

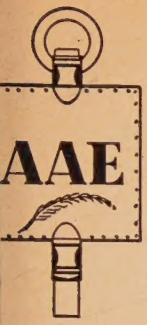
1952 1322 pages $10.00

This book is distinguished from other handbooks because (1) it is not restricted t any one field of engineering and (2) it does not merely tabulate data but also summariz the basic facts and principles of science on which engineering is based. The Secon Edition has been completely modernized.

You can order these books from:

A.A.E. BOOK DEPARTMENT

8 South Michigan Avenue, Chicago 3



The New

AAE MEMBERSHIP KEY

Established in 1951

Designed by Walter R. Kostner

WALTER R. KOSTNER

Symbolic Interpretation

Your Board of Directors is proud to announce the establishment of a embership Key for the Association, which it is sure every member will ke pride in wearing, knowing that he has had an important part in a ovement founded thirty-six years ago by a group of engineers with sion and determination to secure for the engineer greater respect and cognition for his contributions to society.

The front of the key has engraved upon its surface the letters AAE, rep- senting, of course, the initials of the American Association of Engineers. he quill pen symbolizes the initial and persistent efforts of AAE in pro- oting and securing passage of registration laws for engineers; formulation

of a code of ethics, and condification of principles of good professiona conduct; research and fact-finding in the field of business problems, civi responsibilities and public relations of engineering, as well as educatio and action in encouraging and developing the efficiency of engineers, an promoting unity in the profession.

The small indentations forming the border represent the number of year elapsed since AAE was founded in 1915 and the establishment of the ke in 1951 . . . 36 years.

The back of the key has engraved upon its surface a mathematical symb known to ALL engineers as a definite integral. It is the sign of summatio and is generally used to indicate the summing of a vast number of sma quantities of indefinitely minute magnitude that go to make up the tot required. Each and every engineer in AAE is one of these small quantiti The Association is the total.

But what kind of engineers? All kinds and grades, of course! . . . fro A to Z, or from alpha to omega. Alpha being the inferior limit, and ome being the superior limit. Hence, the symbol interpreted simply means t integration of engineers . . . "who can make their profession the most sig nificant factor in industry and government, and the main bulwark of ou democratic institutions as typified in free enterprise."

Walter R. Kostner, development engineer, with The Meaker Compan in Chicago, joined the Association in 1949, and almost immediately du into the archives of AAE to get a working knowledge of its history and i past accomplishments. In true engineering fashion, he studied forme issues of the magazine, pamphlets and publications. He decided in order t be a good member, he should be an active member, and found an oppor tunity in the newly organized Chicago Chapter. He is a motivating forc in the local group, a willing and aggressive worker. He is one of our 195 Engineers carrying forward the ideals and objectives of our founder believing also that "he profits most who serves."

Walter R. Kostner is chairman of the local convention committee fo A.A.E. and assisting him are the following members: H. G. Bodie, Davi W. Dunning, R. S. Hale and William H. Robinson.

(*See Coupon on page* 19 *for ordering key*)

The Engineer In Industry

Attributes of an Executive

By M. E. McIver, Editor

The very complexities of industry today make it almost imperative t a proportion of engineer-employees be capable of attaining executive k. There are certain qualities that those executives must have, and y are not qualities which captains of industry have found, apparently, be especially characteristic of engineers in general.

Industry bids for men with executive experience and exhibits a lingness to train men with executive potentialities for responsible s. It has begun to define those potentialities very clearly. These are ne of the things that industry considers essential in an employee tined for executive rank.

1. Sound training in fundamentals.
2. Knowledge of the cost of engineering operations and an appreciaı of the relation of that expense to the profit possibilities in an entire erprise.
3. Foresight. Ability to foresee trends, new techniques, new methods.
4. A personality that can make a harmonious and effective unit of engineering department by control and leadership of its personnel, at the same time make it function smoothly with other departments.
5. Poise and tact and force that contribute to authority, so that an ineer may be spokesman for all technological personnel in the most ortant company conferences and in negotiation with outside agencies ere technology is the paramount issue.

An essential attribute of a real executive is a certain intuitiveness, erstanding of the abilities, moods and general reactions of subordies, associates and superiors. Industry has indicated time and time in that it recognizes the value of this attribute in executives and in ire executives. The Engineer who can work diplomatically with other artments, who has good personality, tact, ability to get along well with ı, who has a practical as well as a technical mind is the engineer who es a success of his career.

Never before has there been a greater need for cost consciousness in gineers. Employers need men who can see the cost of engineering elation to the profit possibilities of the entire enterprise. They need ineers who can see their costs in relation to those of competitors.

Engineers should be able to interpret into lay language the engiring problems involved in all suggestions offered by the sales manager, research department, the development engineer, the vice president in rge of finance. They must be able to sit in on conferences with the

most important customers and keep in mind the practicability and c of every plan suggested in so far as engineering is concerned.

Engineers are in demand who can make practical application of theories, processes and products developed in research. If they exp to get anywhere near the top they must have the cooperation, the c fidence and the respect of their subordinates, their associates and th superiors.

All of these things, as you may have noticed, involve something m than a mole-like absorption in technical duties. There is first a matte outlook, an appreciation of the relation of a job to the whole enterpr of that enterprise to the industry, and of the industry to society and government.

Attitude and Personality

There is also the matter of attitude toward people. Ability cooperate and secure cooperation. In other words, that import qualification we term "leadership." Men are wanted who have confide in themselves and in their work, confidence even in the presence of highest executives of the company. Poise, naturalness, ease of man authority—they pay off for these at the first window on your right.

Ability to Express Ideas

Engineers must be able to put their ideas over in words—writ and oral expression are both required, often extemporaneous stateme Proficiency in such situations depends first of all on confidence, whic derived from absolute mastery of technology; but it depends also this separate and distinct art, ability to express ideas. It is a well-kno fact that engineers, generally speaking, are inarticulate. This may because engineers are educated along too narrow lines, over-empha upon techniques. One executive has put it this way: "The exces emphasis has been put upon technical education in the scientific sch and the neglect of, if not actual contempt for, training along more lib lines has left the engineer without the capacity to express, advocate defend impressively the results of his technical work. It has also grea foreshortened his growth even along technical lines."

Importance of Keeping Posted

Technological development is moving fast in this atomic age much dependence for the future advancement of civilization depe upon members of the scientific and technological professions. This me it is more important than ever for engineers to keep abreast of devel ments in his field, and those allied to it. This they can do by a study trade and academic journals that chronicle theories, discoveries, prod and processes as they develop. Opportunities for advancement lie anticipating these new things and being prepared to lead in their p

tion. Conversely, engineers who depend entirely on proficiency in a cialty, may find themselves going down with the specialty as it sinks o obsolescence.

Engineering Society memberships, proceedings, journals, conferences a great help to engineers who wish to keep posted. Almost equal efit can be derived from sales meetings, exhibits, conventions of com-cial executives dealing in a particular group of products. Engineers derive immeasurable benefit by attending engineering society meet-s, especially local gatherings where they are privileged to participate hapter activities, discuss new techniques, social and economic prob-s, and in many instances get valuable experience in public speaking. Engineering training is a stepping-stone toward an executive ition. Develop the business and commercial side of a well-grounded, ressive engineer, and he will make an outstanding executive.

Here Comes the Ladies!

r the first time in the history of engineering profession, women will icipate as a separate body in a na-l meeting of their career group n the recently organized Women's ety of Engineers joins with the other neering groups of the country in rating the Centennial of Engineer-n Chicago in September, 1952.

e new women's engineer group was ed late this year and already in-s more than 200 members from all ons of the country, and representing us branches of the engineering pro-on. It is headed by Miss Beatrice s, an executive of the Newark Con-Company, Bloomington, N.J.

Speaking of Words . . . . .

d you know that—
e Lord's Prayer contains 66 words, The Ten Commandments, 197 s; Lincoln's Gettysburg Address, words, and The Declaration of In-dence, 1,348 words, and the OPS reducing the price of cabbage, l words?

owledge is the possession of the about something. Intelligence is bility to use that knowledge, the y to evaluate and judge.

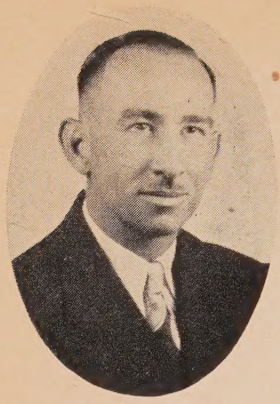
Dr. Grinter Goes to Florida

Dr. Linton E. Grinter, research professor of civil engineering and mechanics at Illinois Institute of Technology, has been appointed dean of the graduate school and director of research at the University of Florida, at Gainesville. Dr. Grinter will assume his new post at the beginning of the fall semester.

For the past two years Dr. Grinter has been consultant to the Board of Control for Southern Regional Education and is now a member of the board's commission on graduate studies. He taught civil engineering at Texas A. and M. college for nine years before coming to Armour Institute of Technology.

To utilize your brain potential to the fullest extent, first you must give your intelligence as much as possible to work with—that's education. A good education is valuable, not because it will put any more brains in your head, but because it will enable you to use the gray matter you have, more effectively. Second, you've got to use your brains—not just occasionally, but consistently. Our mental faculties need regular exercise, just as our muscles do.

. . . John E. Gibson.



Ing. Roberto Barrera C.
President, Parral Chapter AAE

Parral Chapter AAE

Jose J. Garcia, secretary of our new chapter at Parral, Chih., Mexico, writes Headquarters interestingly of their eighth meeting held on Friday, May 30, 1952, attended by a representative group of AAE members. Luis Tinoco gave a very interesting talk on the history of the Parral mining district, which dates back 300 years. Arnulfo Araujo demonstrated an ultra-violet lamp used in prospecting mines. Most of the members of the Parral Chapter are connected with the mining industry.

Roberto Barrera, President and founder of the Chapter, will address the June meeting on Atomic Reactors. The meeting will be held at the Casino de Parral. Ing. Barrera is Mechanical-Electrical Supt. of the American Smelting & Refining Company at Parral. He worked exceedingly hard to get the chapter started and was instrumental in getting the following engineers to join:

Roberto Barrera C.
Rodolfo L. Villareal
Roberto N. Miranda
Pablo Murguia D.
Charles Geo. Overton
Philip B. Brown
Mark DeLano Fowler
Rodolfo Sanchez Otero
Francisco Arelland A.
Alfredo Argueles E.
Aurelio Torres Felix
Fernando Espinosa de los Montero
Arnulfo Araujo
Lorenzo Ceballos
Enrique Saenz Favela

Jose J. Garcia
Carlos Perez Salas
Alberto Ceballos
Hector Ramos D.
Joaquin R. Aguirre
Elmer C. Atchison
Nicolas Covacevich
Luis Tinoco Schaefer
C. A. Green
Jose Tinajero M.
Salvador Tinajero M.
Glenn Rash
Bernardino Castro Rubio
M. O. Steele
Rafael de la Garza
Salvador Perea Acosta

Petition for a chapter charter granted by the National Board of Di tors in November, 1951, and constitu and by-laws approved in June, 1952.

The new A.A.E. group has been successful in getting advantageous licity in the local papers and in one page the aims and objectives of the tional Association were printed so the engineers and the public would k the purposes for which the Asociacion Ingenieros of Parral was founded.

Mr. Barrera is one of our present leaders, enthusiastically and earnestly rying forward the aims and objectives the engineers who founded the Associat thirty-six years ago. He has gathered gether a group of engineers who will se the engineering profession admirably their vicinity. The group is fortunate, in having as one of its esteemed memb Nicolas Coracevich, well known in mining field. Since 1942 he has been g eral machine superintendent of American Smelting & Refining Co., Luis de la Paz, Gto. Mexico. Smelting & Refining Co., San Luis d Paz, Gto. Mexico.

If any of the members of the Asso tion find themselves in the vicinity Parral, Mexico, we sincerely hope they will take time to contact some of brother members across the border.

Plan to Attend The Centennial of Engineering

o commemorate the 100th Anniversary of the American Society of Civil Engineers, and bring to the public the full story of engineering achievement.

In addressing a meeting held in New York City in 1950, when plans or the Engineering Convocation was planned, Major L. R. Lohr, president f the Centennial of Engineering, 1952, very appropriately set forth the ver-all purpose of the Centennial when he said:

"Engineers comprise about three-tenths of one per cent of the 150,000,-00 people in the United States. Probably no other group has contributed nore toward developing the resources of the country, and bringing our tandard of living to a level never before approached, than engineers. Yet, nost of the other ninety-nine and seven-tenths per cent have little, if any, ealization of that fact. To the public mind, a veil of mystery clouds under-anding of engineering principles, methods and accomplishment.

"There is scant appreciation of the circumstances under which prac-ically all of the necessities and conveniences of the every-day life of our eople are based on engineering achievement. Such blessings are accepted ith as little concern as air and sunshine. Our citizens do not know to hat extent the welfare of our nation in peace and its salvation in war epend upon the accumulated and continuing results of engineering research nd its application.

"Practically all of the astounding development based on engineering rogress in our country has come about during the past century, and look-g forward expectantly to unknown developments, it is certain that no mparable progress could be made without the stimulus of our competitive, ee enterprise economic system. Through no other way of life could this untry have reached its present position of acknowledged world leadership technology."

The American Society of Civil Engineers set its sights on its centen-al year in the hope of making its 100th anniversary an occasion in which l branches of engineering would join. This ambition is being realized, that the Centennial of Engineering betokens the accomplishments and ture of every branch of engineering.

Backbone of the convocation is found in events arranged by the corpo-tion, Centennial of Engineering, 1952. These special events are not a sponsibility of any of the participating societies. The program will give engineering and to the general public a remarkable series of twelve sym-sia on major subjects. These sessions are distributed throughout the nvocation period, September 3 to 13. In short, these symposia will be of ge popular interest and accomplish a great deal in realizing the purpose bringing about a better public understanding of engineering and of the asons why America has become so great.

Also included are a reception for foreign delegates on September and significant ceremonies on September 10 which is designated as Centen nial Day. The latter will include a special luncheon and an all-inclusive eve ning party.

That an extraordinary interest is being taken in the Convocation b the entire profession of engineering is evident from the fact that fifty-on engineering organizations have scheduled meetings in addition to the sym posium programs during the September period.

Each society has full responsibility for arranging its own meeting, sub ject general coordination under the over-all supervision of a Convocatio Committee of the Board of Directors of the Corporation. This great tas rests in the hands of two Committees composed of representatives from eac of the participating societies. One is the Coordinating Committee on Tech nical Programs under the chairmanship of G. Donald Kennedy, Assistan to the President of the Portland Cement Association. The second is a cor responding Committee on General Arrangements under the Chairmanshi of Howard F. Peckworth, Managing Director of the American Concre Pipe Association. Representing A.A.E. on this committee are Dr. H. Wagner and William J. Mauer.

The thirty-nine units of engineering which are planning technical se sions are:

American Association of Engineers, American Chemical Society (Ch cago Section), American Concrete Institute, American Geophysical Unio American Institute of Architects, American Institute of Chemical Eng neers, American Institute of Electrical Engineers, American Institute o Mining and Metallurgical Engineers, American Iron and Steel Institut American Meteorological Society, American Public Health Associatio (Engineering Section), American Railway Engineering Association, Amer ican Association for the Advancement of Science, American Society Agricultural Engineers, American Society of Civil Engineers, Americ Society for Engineering Education, American Society of Lubrication Eng neers, American Society of Mechanical Engineers, American Society of Re frigerating Engineers and the American Society of Safety Engineers (Chi cago Chapter).

Also, the American Society for Testing Materials, American Society o Tool Engineers, American Standards Association, American Welding So ciety, Armour Research Council, Association of Consulting Managemen Engineers, Chicago Technical Council, Illuminating Engineering Society Industrial Management Society, Institute of Radio Engineers, Institute o Traffic Engineers, National Conference on Industrial Hydraulics, Societ for Advancement of Management, Society of American Military Engineers Society of Automotive Engineers, Society of Naval Architects and Marin Engineers, Society of Women Engineers, United States Navy (Bureau o Yards and Docks) and the Western Society of Engineers.

American Association of Engineers

Convention Program

September 2nd and 3rd, 1952

Place

Lake Shore Club, 850 N. Lake Shore Drive

General Chairman

William J. Mauer, Sr.
President, W. J. Mauer Company

Program Chairman

Walter R. Kostner
Development Engineer, The Meaker Company

Registration

9:30 A.M.,: September 2nd
No registration fee
All Professional Engineers Invited

ngineers planning to attend the meetings are asked to make Hotel servations through National Headquarters as far in advance as possible.)

:00 A.M.—Annual Meeting.
Address of Welcome, Patrick J. Lucey, President
Committee Reports and Review of Association Ideals and Purposes. Plans for Future Service.

:30 P.M.—Luncheon at the Lake Shore Club
Address by Peter L. Loewe, President
Triad Engineering Company, Chicago, Ill.
Subject: The Position of the Engineer in our Modern World.

:00 P.M.—Panel Session: Moderator, Dr. Herman A. Wagner, Consulting Mining and Metallurgical Engineer, Past President, American Association of Engineers
Subject: Engineering Manpower Problems

a. Is not the shortage of engineers over-emphasized?
b. Do we want to further broaden the base of our professional pyramid by urging youngsters not properly trained to adopt an engineering career?
c. How can engineering talent be better utilized by industry, by government, by the Armed Services?
d. The Market for Engineering Services, 1952-1960.

Panelists: George Havas, Vice President, Kaiser Engineers, Oakland, California.

Vic H. Housholder, Sales Manager, Armco Drainage
Metal Products, Inc., Phoenix, Arizona.
Everett C. Shuman, Director of Research, Kaylo Divisio
Owens-Illinois Glass Co., Toledo, Ohio.
Walter H. Scales, Southern Manager, National Lumbe
Manufacturers Association, New Orleans, Louisiana.

2:00 P.M.—Ladies: Social Hour—Miss Marion E. McIver, Chairma
Mrs. Frank Houlder, Program Chairman

7:30 P.M.—A.A.E. Round-up in charge of Chicago Chapter.

September 3rd

10:00 A.M.—Panel Session:
Moderator, Donald M. Cook, Associate, J. Samuel Har
Chicago, Illinois.
Subject: The Engineer as his Employer Sees Him. Engineer
ing Training: Engineering Traits: Engineering Compensa
tion: Engineering Organization.
Panelists: Edmund J. Fitzmaurice, Past President, A.A.
Executive Engineer, Day & Zimmerman, Inc., Philade
phia, Pennsylvania.
Earl F. Ronneberg, President, N. Ronneberg Compan
Chicago, Illinois.

2:00 P.M.—Panel Session:
Moderator, Donald M. Baker, Consulting Engineer, Ru
cardon Engineers, Los Angeles, California.
Subject: Unity in the Engineering Profession Essential
the Advancement of the Individual Engineer and the Pr
fession.
a. Functions of a Professional Society as distinguished fro
a Technical Society.
b. Public Relations—Human Engineering—the Scientif
Method.
c. Civic Consciousness Vital to Success—Advancement
the Engineer in Public Recognition and Esteem will mak
the term "Engineer" meaningful.
Panelists: Col. Walter R. Jeffrey, Director, A.A.E.
Charles S. Becker, Industrial Engineer, The Crane Con
pany, Chicago, Illinois.

5:30 P.M.—Social Hour. Ladies Invited. Lake Shore Club.

6:30 P.M.—Banquet, Lake Shore Club. Dress optional.
Toastmaster: William J. Mauer, Sr.
(Speaker to be announced later.)
Theme: "Engineers and our Free Enterprise System—The
Contributions and Responsibilities."

Foreign Nations Will Participate in the Centennial of Engineering

At least fifteen foreign nations will officially participate in the Centennial of Engineering to be celebrated in Chicago next September.

The largest single delegation announced so far will come from the Engineering Society of Norway. It will have 17 members. The Royal Society of Industrial Engineers, Belgium is expected to send an 11-man delegation. The combined group representing Great Britain's Institution of Electrical Engineers, Institution of Civil Engineers, and the Institution of Mechanical Engineers is expected to be well represented. Sir John Hacking will head the British electrical engineers, and Dr. Takeo Fukuda, of Tokyo University, will head his nation's delegation. George Darrieus, president of the Society of Civil Engineers, will head the French delegation. Other countries with assured representations from among their leading scientists and engineers are The Netherlands, Switzerland, Italy, India, Canada, Mexico, Cuba, Peru, and Uruguay.

"Adam to Atom"

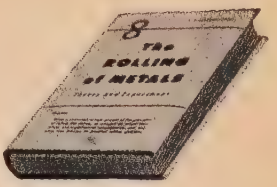
Fittingly titled "Adam to Atom," one of the most spectacular musical shows ever presented to the public will be staged in Chicago this summer as one of the principal features of the Centennial of Engineering.

The show is scheduled to open in the theatre of the Museum of Science and Industry, Saturday, July 12, and it will continue to play two and three performances daily throughout the summer season.

The musical will portray the panorama of mankind's advance by the utilization of engineering and scientific achievements. The story of man's rise will be recounted from the days of the earliest caveman right up to the present moment of the conversion of Atomic power.

"Adam to Atom" will be directed by Mrs. Helen Tieken Geraghty. She directed the 1948-49 Railroad Fair pageant, "Wheels A'Rolling." Musical direction is under Isaac Van Grove, nationally acclaimed composer and conductor. Admission will be $1.20 for adults, 50 cents for children; $1.80 reserved seats, tax inc.

Get expert advice in solving your rolling mill problems . . .



The ROLLING of METALS

Theory and Experiment

Volume I. By L. R. Underwood, Chief Engineer, Rolling Mill Department, W.H.A. Robertson & Co., Ltd., England. Dr. Underwood reviews the basic principles of the rolling of metals, and indicates their bearing on practical rolling problems. His book is based on a comprehensive study of the literature and of many recent theoretical and experimental investigations.

A distinguishing feature of *The Rolling of Metals* is that it treats the subject of rolling as a unified whole and stresses the relationship among the factors involved in the phenomena of rolling. The chief subjects covered in Volume I include forward slip, friction between the rolls and material, friction hill theories of rolling, and methods, based on these theories, of calculating the rolling load.

1950 344 pages 142 illus. $6.50

Order copies from: A.A.E. Book Dept. 8 So. Michigan Ave., Chicago 3, Ill.

Chapter Notes

A.A.E. ENGINEERS AT NEW HAVEN Y.M.C.A. JR. COLLEGE

"For the past two years our organization has been going 'Great Guns'," writes Thad M. Hasbrouck, Vice Chairman of the A.A.E. Student Chapter. Mr. Hasbrouck continues his story as follows:

"We have a fine group of fellows and have been holding meetings regularly on the third Thursday of each month. Our Executive Board holds its meetings separately on the first Thursday of each month.

"Our officers for last year were: Chairman, Yours Truly; Vice Chairman, Harold Jennings; Treasurer, John Kerpchar; Corresponding Secretary, Frank Elliott; Recording Secretary, Charles Ryan; Program Chairman, Peter Bertier. We had a fine year, consisting of many plant visits where we inspected the operations of many varied kinds of manufacture and also some very fine speakers. As perhaps with so many other Student Chapters ours was hard hit by the boys being called into service. In fact, our program chairman was called and Charlie Ryan stepped in and did a fine job of carrying on. In spite of all this, we had very good member interest and large turnouts for meetings were the rule rather than the exception.

"Our Executive Board for this year lines up as follows: Chairman, Harold Jennings; Vice Chairman, Yours Truly; Treasurer, Leon Taylor; Corresponding Secretary, Bill Pantalone; Recording Secretary, Frank Elliott and Program Chairman, Charlie Ryan again. Charlie has been doing a fine job for us and has an ambitious program lined up for this year.

"We have been hard pressed to find plant visits this year because of all the defense work going on in this part of the country and therefore have had to rely upon more speakers than in previous years.

"We started off the year with our annual 'Beer & Pretzel' meeting which is purely social in aspect. It gives the fellows a chance to renew acquaintance and welcome new members. In November we had the Assistant to the Manager of the General Electric Company, Appliance Division in Bridgeport, Conn., address the group on "Some Challenging Problems in the Appliance Field." It was an interesting talk and greatly enjoyed.

"Slated to come up during the year are films concerning the Bikini Atom Bomb Tests and also a demonstration and lecture on powdered metallurgy and its many uses.

"As you know, our Chapter is made up both of undergraduates and alumni. With all this defense production, our fellows are putting in long hours at work as well as at school, and it isn't easy to get them out for meetings. If you have any suggestions, send them along.

"I have been named to the newly created post of 'Employment Coordinator' for the membership of our Chapter. The purpose of my job is to bring together prospective employers and qualified members of our Chapter who may be looking for a new position. Knowing the National Association has an employment organization I would appreciate any help you can give me as to the organization of such a project and getting it into full gear. I know that this seems like a rather tall order for such a small group as ours, but we are trying to give our members everything we can in the way of benefits.

President Lucey in Florida

While vacationing in Florida, Patrick J. Lucey, President of A.A.E., attended the banquet given in honor of Chelsea J. Senerchia, an engineer and mayor of Miami. It was Engineers' Week in Florida, and Mayor Senerchia was presented with a certificate citing him for "the devotion he has shown in his chosen profession as an engineer and his maintenance of high standards."

Long Beach

The April meeting was held on April 17, with dinner at the University Club and an interesting program was arranged by John Howe. A. A. Nickman of Holabird, Root and Burgee, architects-engineers was the guest speaker. He discussed the design and construction of the Statler Center Hotel and Office building of Los Angeles.

SAN BERNARDINO VALLEY COLLEGE

We are glad to welcome back to membership the Engineers Club at San Bernardino College. Heading the group for this year are the following student members: James T. Walker, president; Charles J. Simmons, vice-president; Roy Marshall, secretary-treasurer; Tom Sharpe, program chairman; Don Kizer, excursion chairman, and Richard Williams, advertising.

Chaffey College

Our student engineers at Chaffey College expressed their appreciation of the publicity we gave them in PROFESSIONAL ENGINEER a short time ago. The group is one of our most active student chapters and our readers will hear more about this aggressive group of young engineers.

At the helm during the second semester are: President, Joseph Lecce; Vice-President, Allan Beggs; Rec. Secretary, George Madsan; Cor. Secretary, Jim Reynolds; Treasurer, Mordicai Iaeger; Field Trip Chairman, Palmer House.

Fred Gast Retires

Fred William Gast, a member of the American Association almost since its inception, and who has been with the U.S. Treasury Department for more than 38 years, retired as chief of the Bureau's division of Engineering and Weighing in December, 1951.

Mr. Gast perfected the electrically operated automatic weighing and recording scales used by the Bureau of Customs. Before entering the Office of the Supervising Architect, which in 1903 was a part of the Treasury Department, he worked as an engineering draftsman in St. Louis, his native city.

In his early years in the Government service, Mr. Gast drew up electrical specifications for elevators and among his jobs were elevators for the Capitol, the House and Senate Office Buildings, the Pan American Union, and the District Building.

In commenting on Mr. Gast's retirement, the Washington, D.C., Star, states:

"In the first decade of the century, the Treasury became interested in the development of tamper-proof weighing devices for use by the Customs Bureau. Interest in the development was heightened by an investigation which uncovered multi-million dollar frauds against customs revenues accomplished by manipulation of scales on the premises of certain importers.

"After several attempts by scale manufacturers in this country and England to develop the equipment the Government required, they gave up the project.

"They refused to fool with it—said it couldn't be done, Mr. Gast recalled.

"It was to him that the department turned the project over in 1909. Working at the United States Mint in Philadelphia, Mr. Gast by the use of certain electrical features, was able to overcome the obstacles encountered by the manufacturers and build a working model in the same year.

"From that time on, Mr. Gast devoted almost all of his time to work for the Customs Bureau, and when the bureau set up its own engineering department in 1915, he was put in it.

"In the division he worked on design of customs border inspection stations, selecting sites for customs buildings and other engineering jobs for the bureau.

"Mr. Gast is vice president of the District chapter of the American Association of Engineers. Long interested in civic affairs, he was the first Mayor of Cheverly after incorporation of the community, where he lives at 10 Cheverly Circle."

Never worry because a rival imitates you. So long as he follows in your tracks he can't pass you.

GET YOUR COPY OF

"A REFERENCE HANDBOOK"

for

CONSTRUCTION ENGINEERS
ARCHITECTS
BUILDERS AND SUPERINTENDENTS
OF CONSTRUCTION
BUILDING CONSTRUCTION FOREMEN

by

H. G. RICHEY
District Engineer (Retired)
Construction of Public Buildings
U. S. Treasury Department

A book of information gained through experience and practice.

$10.00

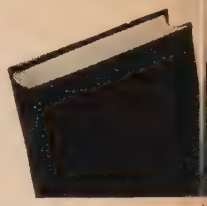
order from

A.A.E. BOOK DEPARTMENT

8 So. Michigan Ave. Chicago 3, Ill.

Just Published!

INDUSTRIAL PROCESS CONTROL BY STATISTICAL METHODS



By John J. Heide
Industrial-Statistical Analyst, U.S. Rubber Co.
300 pp., 100 illus.
$6.00

McGraw-Hill Industrial Organization and Management Series

In simple, plant-man language, this book covers both the statistical methods and practical techniques of applying statistical quality control in all manufacturing. Up-to-date and comprehensive, it shows step-by-step: (1) how to install a system of quality control, and (2) how to administer an established system, with methods that can be put to work in the shortest possible time.

Order your copy from

A.A.E. BOOK DEPARTMENT

8 So. Michigan Ave. Chicago 3, Ill.

Eyes For The Needy

We imagine that our readers are acquainted with the philanthropic work of the late Mrs. Arthur E. Terry, affectionately known in Short Hills as the "Eyeglass Lady." Her idea was to turn discarded eye-glasses into something useful. She discovered that there was no service which would supply spectacles to those who could not afford to buy them.

Through appeals to personal friends, through newspaper articles, magazines, and the radio, eye-glasses began coming in from every state in the Union. Since her death in 1947 the Short Hills Junior Service League has incorporated New Eyes for the Needy as a non-profit charitable organization.

If you don't know what to do with your discarded spectacles, send them to New Eyes for the Needy, Short Hills, New Jersey, and you may be sure that they will be put to good use.

Missouri Honors Engineers

The University of Missouri Honor Awards for Distinguished Service in Engineering were recently presented to three noted engineers and a governmental agency at the second annual Engineers' Convocation held at the University.

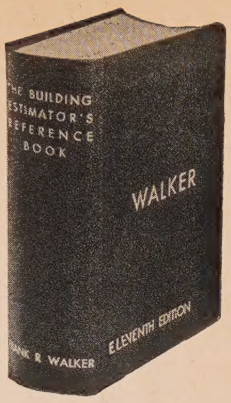
Dean Huber O. Croft of the Missouri College of Engineering presented bronze medals and certificates for outstanding achievement to: Charles A. Thomas, chemical engineer, president, Monsanto Chemical Company of St. Louis; General Leif J. Sverdrup, St. Louis, consulting structural engineer and noted military engineer; Dr. Wilfred Sykes of Chicago, electrical engineer, chairman of the executive committee of the Inland Steel Company; and Dr. Allen V. Astin, acting director of the National Bureau of Standards, who accepted the award on behalf of the Bureau.

You don't have to explain something you haven't said.—Calvin Coolidge.

Winter Wonder

Snow-melting systems incorporating e principles of radiant heat provide unusual subject for the recently re-ased 16 mm sound motion picture, Vinter Wonder". This scientific film produced by Meridian Film Corpora-on and sponsored by the A. M. Byers ompany and distributed through the m libraries of Modern Talking Picture ervice, Rockefeller Plaza, New York. The film is intended primarily as an structive feature, offered free of arge to technical schools, engineering cieties and similar organizations. It is ailable to these groups in all states cept Alabama, Arkansas, Arizona, alifornia, Florida, Georgia, Louisiana, ississippi, New Mexico, Nevada, orth Carolina, Oklahoma, South Caro-a, Tennessee and Texas.

The film, lasting nine minutes, is a ack and white presentation and opens th a discussion of radiant heating chniques, and continues with an ex-anation of how the engineering "fad come fixture" has made possible the velopment of snow-melting systems.



A Valuable Guide

The Building Estimator's Reference Book

New Eleventh Edition Including the New Vest-Pocket Estimator

by

Frank R. Walker

Here is the one Estimating Guide that really will help you prepare accurate and dependable estimates on all classes of building construction. It is now being used by contractors in all parts of the country constructing, repairing and maintaining industrial, factory, commercial and residential buildings.

The new Eleventh Edition of this Reference Book is completely rewritten, revised, reset and brought up-to-date in every respect. It contains estimating and cost data on all classes of building construction. New materials and new methods have made all previous estimating data obsolete.

Helps you prepare profit-making estimates. All valuable information at your finger tips for ready reference. **$12.00**

Order your copy from

A.A.E. BOOK DEPARTMENT

8 So. Michigan Ave. Chicago 3, Ill.

AAE MEMBERSHIP KEY

e Association has adopted attractive, appropriately de-ned key described on page 5 this issue. Keys are now dy for distribution.

will be the regular size of raternity key, 10K gold, and for $10.00. Key may be rn on tie clasp.

ORDER NOW!
Use This Coupon

The American Association of Engineers

8 South Michigan Avenue, Chicago 3, Illinois

Here is my order for an AAE Key and my check for $10.00. (If you wish key with pin attachment, send $11.50).

Name: .....

Street: .....

City: ..... State: .....

Check Enclosed ..... Date .....

Book Reviews

THE BOOK DEPARTMENT OF THE ASSOCIATION INVITES YOU TO USE ITS SERVICES WHEN IN THE MARKET FOR TECHNICAL BOOKS AND DICTIONARIES. SAVE TIME—MONEY—INCONVENIENCE

Applied Mathematics, Part III, Henry Gortler, Math. Instructor, University of Freiburg. O. W. Leibiger Research Laboratories, Inc., Petersburg, N.Y.

Volume 5 of The American Fiat Review of German Science, in the same way as other volumes, gives vital details of work done by German scientists during the war. Military Government of the British, French and U.S. Zones of Germany by means of their respective Field Information Agency, Technical, present this volume in the hope that it will assist in informing international science of research done in Germany through the war years.

Graphic Aids in Engineering Computation, Randolph P. Hoelscher, Head Dept., General Engineering Drawing, Univ. of Illinois; Joseph Norman Arnold, Assoc. Prof., General Engrg., Purdue, and Stanley H. Pierce, Assist. Dean, College of Engrg., Univ. of Illinois. McGraw-Hill Book Co. $4.50.

A new text, covering a number of graphical and mechanical methods of computation not heretofore assembled in one volume. It is a simple and practical treatment of the subject, and is designed for students beyond their freshman year in engineering colleges. An excellent textbook.

General Network Analysis, Wilbur R. LePage, Professor, Electrical Engrg., and Samuel Seely, Chairman, Department of Electrical Engrg., Syracuse University. McGraw-Hill Book Co. $8.

The book has been developed to provide a unified approach to the subject of network analysis. The subject is treated in a general way and is intended to provide the background for advanced work in either power or communications. Exercise problems accompany each volume. A well-written and informative text.

Alternating-Current Machines, Geor V. Mueller, Prof., Electrical Engr Purdue University. McGraw-H Book Co. $7.50.

This book is intended primarily for t senior electrical engineering stude The author has presented his subject a clear and practical manner. Standa symbols and abbreviations are us throughout the text. Arrangement material is excellent.

Corrosion Calises and Prevention, Fra N. Speller, Corrosion Consultant. M Graw-Hill Book Co. $10.

A systematic and authoritative pr entation of the theory of corrosion, a methods of preventing it, are given this new revised third edition. The m terial has been brought up to date a new sections on Biological Influence a Cathodic Protection have been added valuable book for the engineer a architect interested in solving spec corrosion problems.

Introductory Soil Mechanics and Fou dations, George B. Sowers, Consulti Engr., Lt. Col., Corps of Engrs., A (Res) and George F. Sowers, Ass Prof., C.E., Ga. Inst. of Tech. T MacMillan Co. $4.75.

The book stresses the rational, sci tific approach to soil and foundati problems and explains how the th ries are applicable in practice. Pra ticing engineers who encounter s problems will find this book valuable.

Bituminous Coal Mining Lectures, C tral Pennsylvania Coal Produce Assoc.

Here is a series of discussions of c mining problems at a seminar held connection with the Summer Session the School for Mining Men promoted the Association at Saint Francis C lege, Loretto, Pa.

rchitectural & Engineering Law, Bernard Tomson, Reinhold Publishing Corpn., $7.

Architectural and Engineering Law is vided into seven major parts: 1. Linse laws for the architect, engineer, rveyor and general contractor. 2. Retions among architects and engineers. Architect, engineer, and owner—the nployment relationship. 4. Decision or rtificate of the architect or engineer. Rights of architects and engineers; mpensation. 6. Liability of architect or gineer to owner. 7. Rights of the archi-ct and engineer — property in plans. r. Tomson is the author of a monthly lumn in Progressive Architecture, enled "It's the Law."

---

dio License Examinations, How to Pass. 3rd ed. Charles E. Drew. John Wiley & Sons. $4.50.

This is not a textbook, but it does con-n all essential information needed to ss examinations for a radiotelephone stricted operator permit, radio-tele-one third-class operator permit, and liotelegraph third-class operator per-t in Elements 1, 2, and 5. A reference bliography concludes the text.

---

rman-English and English-German Dictionary for Scientists. O. W. Leibiger, Ph.D., F.A.I.C., Pres., O. W. Leibiger Research Laboratories, Inc. nd I. S. Leibiger, Dir., Research, O. V. Leibiger Research Laboratories, nc. J. W. Edwards. $8.

Here is a valuable aid to chemists, sicists, and students of all sciences. e dictionary lists not only tens of usands of well-known chemical, sical, mathematical, engineering, bio-ical, medical, and other scientific ns, but also many thousands of words ated in the last few years in the rse of recent developments in high-ymeric chemistry, nuclear physics, io, and so forth. This bilingual dic-ary is the result of 25 years of re-rch work and translation activities the part of the author-scientists, and an exceedingly valuable tool. A st" for any laboratory.

German-English Technical and Engineering Dictionary, Louis De Vries, Prof., Modern Languages, Iowa State College. McGraw-Hill Book Co. $20.

A compendium of more than 125,000 entries, including glossaries of new words not contained in any other publication. It is the work of research men and women and reflects the experience of the last ten years that have witnessed revolutionary advances in engineering and technology, with their many additions to technical nomenclature. An excellent book.

Fluid Mechanics, Victor L. Streeter, Consultant in Mechanics, Armour Research Foundation. McGraw-Hill Book Co. $5.

The intent of this book is to continue the student's training in analytical expression. The author introduces the reader to a first course in fluid statics and fluid flow, developing the material as a continuation of his work in mechanics. Such recent advances as jet and rocket propulsions, torque converters, and oil hydraulic systems are discussed with regard to their basic fluid mechanics principles. A complete treatment, illustrated with examples.

Introduction to Heat Transfer, Aubre I. Brown, Chm., Dept., M.E., Ohio State Univ. and Salvatore M. Marco, Prof., M.E., Ohio State. McGraw-Hill Book Co. $4.50.

In his second edition, the author has added new material and made a number of revisions to bring the book up to date. The book presents the essential fundamentals of the transmission of heat in a manner that is readily understandable to engineering students. Complicated mathematics is kept at a minimum. Useful tables and graphs have been added.

Engineers' Illustrated Thesaurus, Herbert Herkimer. Chemical Publishing Co. $6.

A scrap-book collection of engineering drawings, sketches, diagrams and abstracts from various domestic and for-

WILEY BOOKS

PLASTICS MOLDING

By JOHN DELMONTE, *President, Furane Plastics Inc.* Places maximum emphasis on the selection and adaptation of equipment to molding problems, and shows the application of scientific principles to molding processes in a manner that should prove most useful to the industry. 1952. 493 pages. $9.00

PRINCIPLES OF RADIO, Sixth Edition

By KEITH HENNEY, *Electronics and Nucleonics,* and GLEN A. RICHARDSON, *Iowa State College.* Designed for the reader with little background in radio who wants to know the basis upon which radio communication exists, this book places major emphasis on the operation of basic radio circuits. 1952. 655 pages. $5.50

STATISTICAL THEORY WITH ENGINEERING APPLICATIONS

By A. HALD, *University of Copenhagen.* Covers a large part of the theory developed during the past 50 years, which has proved to be of practical value.
WILEY PUBLICATION IN STATISTICS, Walter A. Shewhart, Editor. May 1952. 784 pages. $9.00

STATISTICAL TABLES AND FORMULAS

By A. HALD. Published in conjunction with the above book, this is a separate volume that includes a comprehensive set of statistical formulas of practical importance and tables containing standard statistical functions. A WILEY PUBLICATION IN STATISTICS, Walter A. Shewhart, *Editor.* May 1952. 97 pages. $2.50

FUNDAMENTALS OF AUTOMATIC CONTROL

By G. H. FARRINGTON, *Consultant Engineer, Ilford, Ltd.* The first comprehensive approach to the general field of Automatic control, covering all possible forms and applications, including both Process Control and Servomechanisms. November 1951. 285 pages. $5.00

FINITE DEFORMATION OF AN ELASTIC SOLID

By FRANCIS D. MURNAGHAN, *Instituto Tecnologico de Aeronáutics, Brazil.* The essential feature of this book is the consideration of squares and higher powers of the strain components in the theory of elasticity. A Book in the WILEY APPLIED MATHEMATICS SERIES, I. S. Sokolnikoff, *Editor.* November 1951. 140 pages. $4.00

D. C. POWER SYSTEMS FOR AIRCRAFT

By R. H. KAUFMANN, *General Electric Company,* and H. J. FINISON, *Armour Research Foundation.* Offers the engineer performance data obtained in many tests on electrical equipment, and uses the data to develop general principles he can apply to specific problems. 1952. 206 pages. $5.00

ELECTRICAL MEASUREMENTS

By FOREST K. HARRIS, *National Bureau of Standards* and *Washington University.* The result of 30 years of laboratory experience in improving measuring units, this book covers all significant aspects of d-c and low frequency measuring, covering much original material never before published. 1952. 784 pages. $8.00

Order from A.A.E. Book Department
8 South Michigan Ave. Chicago 3, Ill.